Response to EPA 8/4/08 BART Comments on Coal Creek (8/21/08)

NDDH BART Determination:

32. Relative to the Future Case Table on page 10, we agree that the alternative labeled "Existing Scrubber & 27% Bypass" and that also has 83.1% control efficiency is in error. It has been corrected to read "Existing Scrubber & 0% Bypass."

You are correct that the Future Case Table does not contain an adjustment to Btu content to reflect dried coal. The BART Determination text will be revised to be clear on that point. The only adjustment made to the baseline uncontrolled SO_2 emissions was to reflect the projected increase in coal sulfur content based on mine core sampling. The 1.1% future coal sulfur content is an "as received for raw coal" value. If the SO_2 baseline is adjusted to reflect the switch from past raw coal at 6,200 Btu/lb to future dried coal at 7,200 Btu/lb, then the future coal sulfur content also must be adjusted (to approximately 1.4%) to reflect the drying so that the Btu/lb and the sulfur content remain on the same basis. The results of applying these adjustments are shown in Table 1 and Table 2 below for information only. These adjustments make the wet scrubber modification an even more favorable choice when compared to the wet scrubber replacement.

We do not intend to make these changes to the BART Determination because we cannot be reasonably sure of the future fuel moisture or Btu content. Although the GRE analysis indicates the intent to use dried lignite, the BART determination and the Permit to Construct neither require dried lignite nor limit the moisture content. Limiting the fuel characteristics is unnecessary because the BART determination recommends, and the Permit to Construct limits, the maximum SO_2 lb/10^6 Btu or minimum percent reduction.

Table 1: Future Case (Dried Lignite)

Alternative	**Control Efficiency (%)**	**Baseline Uncontrolled Emissions (tons/yr)***	**Controlled Emissions***	
			(tons/yr)	**(lb/10^6 Btu)****
Wet Scrubber Replacement***	95	66,209	3,310	0.126
Wet Scrubber Modification***	95	66,209	3,310	0.126
Spray Dryer***	90	66,209	6,621	0.251
Existing Scrubber***	83.1	66,209	11,189	0.424
Dry Sorbent Injection***	70	66,209	19,863	0.753
Existing Scrubber & 27% Bypass	68****	66,209	21,187*****	--

* Future dried lignite at 1.4% sulfur content. GRE-predicted 1.10% worst-case sulfur content for Falkirk Mine raw lignite. This was adjusted to 1.4% due to drying. As a

result, the Department's baseline future emission estimates are somewhat higher than GRE's estimates.

** Annual

*** 0% bypass

**** Current control rate

***** Current controlled emissions = 76,888(1-0.68) = 24,604 tpy (6200/7200 Btu/ton) = 21,187 tpy

Table 2: Costs of Compliance (Dried Lignite)

Alternative	**Emissions Reduction (tons/yr)**	**Annualized Cost ($)***	**Cost Effectiveness ($/ton)**	**Incremental Cost ($/ton)**
Wet Scrubber Replacement	17,877	30,760,000	1,721	29,020
Wet Scrubber Modification	17,877	11,520,000	644	--
Spray Dryer**	14,566	29,220,000	2,006	--
Existing Scrubber	9,998	9,840,000	984	N/A
Dry Sorbent Injection**	1,324	12,520,000	9,456	N/A

* Costs provided by GRE

** Inferior option to wet scrubber modifications

*** 0% bypass

N/A -- Not applicable since the cost of the less efficient alternative is more than the more efficient alternative

33. The Permit to Construct has been revised to require the modified wet scrubber to achieve the same level of SO_2 control efficiency as wet scrubber replacement: 95% (30-day rolling average) on the inlet SO_2 concentration to the scrubber or 0.15 lb/10^6 Btu (30-day rolling average). With this change, wet scrubber replacement would provide no improvement in visibility at any Class I area and would result in additional cost over wet scrubber modification ($24,987/ton incremental cost).

34. While we are not certain it is inappropriate to consider capital recovery of at least some of the ash sales infrastructure, we looked at the impact of disregarding all of that cost in the analysis of SNCR. It appears the annualized cost would change from $22,900,000 to $21,750,000; the cost effectiveness would change from $8,551/ton to $8,122/ton; and the incremental cost would change from $20,766/ton to $19,692/ton. These changes appear small when compared to the values for the NOx control option selected, SOFA/LNB Opt 1.

Regarding the request for additional information to evaluate the GRE position that employing SCR or SNCR technology may negatively affect fly ash sales due to ammonia slip, the attached GRE email dated 8/8/08 at 3:19 p.m. provides that additional information. The Department also considered a summary of a University of Kentucky study on the issue (attached) and has reached the following conclusions.

- SCR and SNCR use at Coal Creek Station will likely result in ammonia in the fly ash.
- The level of ammonia in the fly ash cannot be predicted with a reasonable certainty.
- The maximum level of ammonia in fly ash that would preclude negative impacts on the salability of the ash cannot be predicted.

Therefore, the Department cannot determine with reasonable certainty that SCR or SNCR will not result in a level of ammonia in the ash that could reduce or eliminate future ash sales. Any regulator who determines that SCR or SNCR will not jeopardize ash sales would be obligated to present the evidence in support of that position. While another regulator might determine that even a small improvement in visibility is worth GRE taking the risk of lost ash sales, making a wrong decision on this one will inflict a significant financial penalty on GRE and send ash to a landfill instead of it being used beneficially. Having considered all of the information available, the NDDH BART determination on this matter remains unchanged and the Department considers the issue resolved.

NDDH Proposed Permit to Construct for BART – Coal Creek:

35. The Coal Creek Permit to Construct wording at Condition II.A.1.c has been changed as suggested.